

WHAT IS CLAIMED IS:

1. A stable water-in-oil emulsion containing at least one polymeric surfactant comprising at least one polar part and at least one polyolefinic apolar part, and also containing at least one organic 4,4-diarylbutadiene UV-A-screening agent.
2. The water-in-oil emulsion as defined by Claim 1, said polymeric surfactant comprising a polyolefinic apolar part containing at least 40 carbon atoms.
3. The water-in-oil emulsion as defined by Claim 1, said polyolefinic apolar part being selected from among polymers and/or copolymers of ethylene, propylene, 1-butene, isobutene, 1-pentene, 2-methyl-1-butene, 3-methyl-1-butene, 1-hexene, 1-heptene, 1-octene, 1-decene, 1-undecene, 1-dodecene, 1-tridecene, 1-tetradecene, 1-pentadecene, 1-hexadecene, 1-heptadecene and 1-octadecene.
4. The water-in-oil emulsion as defined by Claim 1, said polar part being anionic, cationic, nonionic, zwitterionic or amphoteric.
5. The water-in-oil emulsion as defined by Claim 1, said polar part comprising polyalkylene glycols, polyalkylene imines, carboxylic or dicarboxylic acids, anhydrides or derivatives thereof, and mixtures thereof.
6. The water-in-oil emulsion as defined by Claim 1, said polar part comprising polyoxyethylene, succinic acid or anhydride and derivatives thereof.
7. The water-in-oil emulsion as defined by Claim 1, said polymeric surfactant being derived from the reaction between a polyolefin derivative and at least one

carboxylic acid or anhydride selected from among maleic acid; maleic anhydride; fumaric acid; itaconic acid; citraconic acid; mesaconic acid; aconitic acid; derivatives and mixtures thereof.

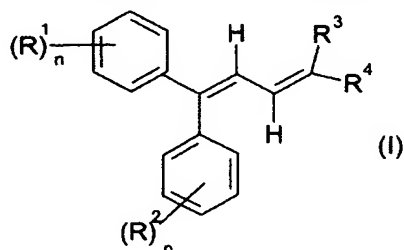
8. The water-in-oil emulsion as defined by Claim 1, said polymeric surfactant comprising a polyisobutylene with an optionally modified succinic endgroup.

9. The water-in-oil emulsion as defined by Claim 1, said polymeric surfactant comprising the product of the reaction of maleic anhydride with polyisobutylene.

10. The water-in-oil emulsion as defined by Claim 1, said polymeric surfactant reducing interfacial tension by at least 10 mN/m at a concentration of 0.01 % by weight relative to the weight of the oily phase.

11. The water-in-oil emulsion as defined by Claim 1, the quantity of polymeric surfactant ranging from 0.1 % to 10 % by weight of active material relative to the total weight of the emulsion.

12. The water-in-oil emulsion as defined by Claim 1, said at least one 4,4-diarylbutadiene UV-A-screening agent having the following formula (I):



in which the diene system is of the Z,Z; Z,E; E,Z or E,E configuration or mixture of said configurations, and wherein:

R^1 and R^2 , which may be identical or different, are each hydrogen, a C_1 - C_{20} alkyl radical, a C_2 - C_{10} alkenyl radical, a C_1 - C_{12} alkoxy radical, a C_3 - C_{10} cycloalkyl radical, a C_3 - C_{10} cycloalkenyl radical, a C_1 - C_{20} alkoxycarbonyl radical, a C_1 - C_{12} monoalkylamino radical, a C_1 - C_{12} dialkylamino radical, an aryl radical, a heteroaryl radical or a water-solubilizing substituent selected from a carboxylate residue, a sulfonate residue or an ammonium residue;

R^3 is a group $COOR^5$, COR^5 , $CONR^5R^6$, CN , $O=S(-R^5)=O$, $O=S(-OR^5)=O$, $R^7O-P(-OR^8)=O$, a C_1 - C_{20} alkyl radical, a C_2 - C_{10} alkenyl radical, a C_3 - C_{10} cycloalkyl radical, a C_7 - C_{10} bicycloalkyl radical, a C_3 - C_{10} cycloalkenyl radical, a C_7 - C_{10} bicycloalkenyl radical, an optionally substituted C_6 - C_{18} aryl radical, an optionally substituted C_3 - C_7 heteroaryl radical;

R^4 is a group $COOR^6$, COR^6 , $CONR^5R^6$, CN , $O=S(-R^6)=O$, $O=S(-OR^6)=O$, $R^7O-P(-OR^8)=O$, a C_1 - C_{20} alkyl radical, a C_2 - C_{10} alkenyl radical, a C_3 - C_{10} cycloalkyl radical, a C_7 - C_{10} bicycloalkyl radical, a C_3 - C_{10} cycloalkenyl radical, a C_7 - C_{10} bicycloalkenyl radical, an optionally substituted C_6 - C_{18} aryl radical, an optionally substituted C_3 - C_7 heteroaryl radical;

the radicals R^5 to R^8 , which may be identical or different, are each hydrogen, a C_1 - C_{20} alkyl radical, a C_2 - C_{10} alkenyl radical, a C_3 - C_{10} cycloalkyl radical, a C_7 - C_{10} bicycloalkyl radical, a C_3 - C_{10} bicycloalkenyl radical, a C_7 - C_{10} cycloalkenyl radical, an optionally substituted aryl radical, an optionally substituted heteroaryl radical; and

\underline{n} ranges from 1 to 3; with the proviso that the radicals R^3 to R^8 can together form, with the carbon atoms from which they depend, a C_5 - C_6 ring which may be fused.

13. The water-in-oil emulsion as defined by Claim 2, wherein formula (I):

$\underline{n} = 1$ or 2 ;

R^1 and R^2 , which may be identical or different, are each hydrogen, a C_1 - C_{20} alkyl

radical, a C₁-C₁₂ alkoxy radical, a C₁-C₁₂ monoalkylamino radical, a C₁-C₁₂ dialkylamino radical, a water-solubilizing substituent selected from among a carboxylate group, a sulfonate group or an ammonium residue;

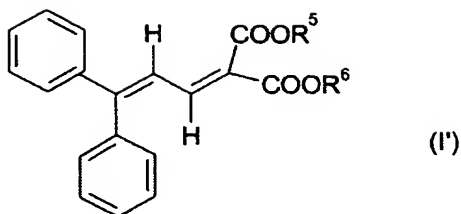
R³ is a group COOR⁵, COR⁵, CONR⁵R⁶, a C₁-C₂₀ alkyl radical, a C₃-C₁₀ cycloalkyl radical, a C₃-C₁₀ cycloalkenyl radical, a C₇-C₁₀ bicycloalkyl radical, optionally substituted phenyl, naphthyl or thienyl;

R⁴ is a group COOR⁶, COR⁶, CONR⁵R⁶, a C₁-C₂₀ alkyl radical, a C₃-C₆ cycloalkyl radical, a C₃-C₁₀ cycloalkenyl radical, a C₇-C₁₀ bicycloalkyl radical, optionally substituted phenyl, naphthyl or thienyl; and

the radicals R⁵ and R⁶, which may be identical or different, are each hydrogen, a C₁-C₁₂ alkyl radical, a C₃-C₁₀ cycloalkyl radical, a C₃-C₁₀ cycloalkenyl radical, a C₇-C₁₀ bicycloalkyl radical, a C₃-C₁₀ bicycloalkenyl radical, optionally substituted phenyl or naphthyl.

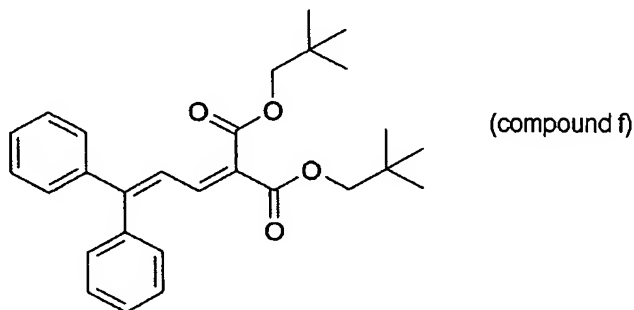
14. The water-in-oil emulsion as defined by Claim 13, wherein formula (I):
R¹ and R², which may be identical or different, are each hydrogen, a C₁-C₂₀ alkyl radical, a C₁-C₂₀ alkoxy radical, a water-solubilizing substituent selected from among a carboxylate group, a sulfonate group or an ammonium residue;
R³ is a group COOR⁵, COR⁵, CONR⁵R⁶;
R⁴ is a group COOR⁶, COR⁶, CONR⁵R⁶; and
the radicals R⁵ and R⁶, which may be identical or different, are each hydrogen, a C₁-C₁₂ alkyl radical, a C₃-C₆ cycloalkyl radical, a C₃-C₁₀ cycloalkenyl radical, a C₇-C₁₀ bicycloalkyl radical, a C₃-C₁₀ bicycloalkenyl radical, optionally substituted phenyl or naphthyl.

15. The water-in-oil emulsion as defined by Claim 14, the compound of formula (I) being selected from among those of the following formula (I'):

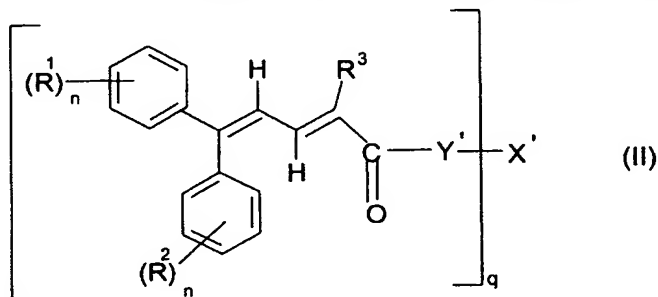


wherein the radicals R^5 and R^6 , which may be identical or different, are each hydrogen, a C_1 - C_{20} alkyl radical, a C_3 - C_6 cycloalkyl radical, a C_3 - C_{10} cycloalkenyl radical.

16. The water-in-oil emulsion as defined by Claim 15, the compound of formula (I') being 1,1-dicarboxy(2,2'-dimethylpropyl)-4,4-diphenylbutadiene having the structure:



17. The water-in-oil emulsion as defined by Claim 1, said at least one 4,4-diarylbutadiene UV-A-screening agent having the following formula (II):



in which the diene system is of the Z,Z; Z,E; E,Z or E,E configuration or mixture of said configurations and wherein:

R^1 , R^2 , R^3 and n have the meanings indicated in the formula (I);

Y' is a group $-O-$ or $-NR^9-$;

R^9 is hydrogen, a linear or branched C_1 - C_{20} alkyl radical, a C_2 - C_{10} alkenyl radical, a C_3 - C_{10} cycloalkyl radical, a C_7 - C_{10} bicycloalkyl radical, a C_3 - C_{10} cycloalkenyl radical, a C_7 - C_{10} bicycloalkenyl radical, an aryl radical, a heteroaryl radical;

X' is a residue of a linear or branched, aliphatic or cycloaliphatic C_2 - C_{20} polyol comprising from 2 to 10 hydroxyl groups and having the valency q ; with the proviso that the carbon chain of said residue may be interrupted by one or more sulfur or oxygen atoms, one or more imine groups, one or more C_1 - C_4 alkylimino groups; and

q ranges from 2 to 10.

18. The water-in-oil emulsion as defined by Claim 17, wherein said compound of formula (II):

R^1 and R^2 , which may be identical or different, are each hydrogen, a C_1 - C_{12} alkyl radical, a C_1 - C_8 alkoxy radical, a water-solubilizing substituent selected from among a carboxylate group, a sulfonate group or an ammonium residue;

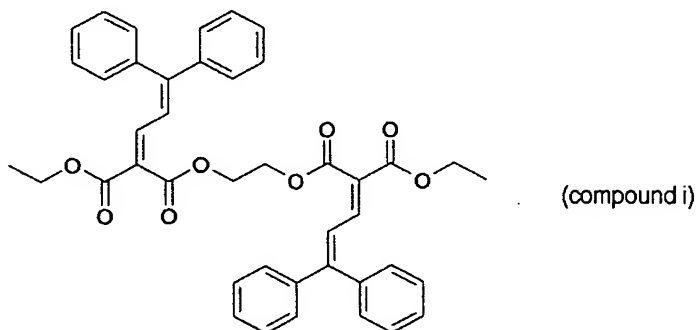
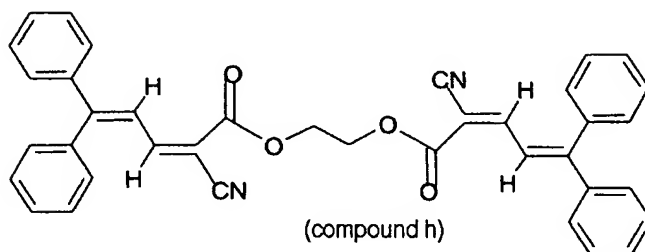
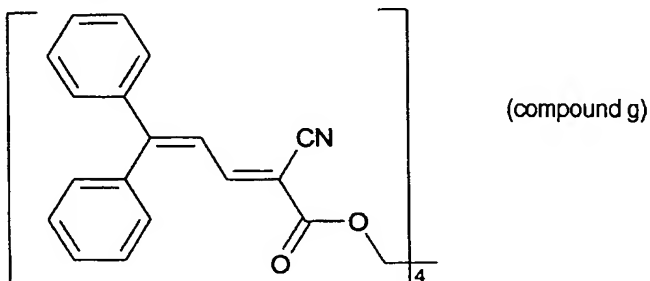
R^3 is a group $COOR^5$, $CONR^5R^6$, CN , a C_3 - C_{10} cycloalkyl radical, a C_7 - C_{10} bicycloalkyl radical;

R^5 and R^6 , which may be identical or different, are each a linear or branched C_1 - C_{20} alkyl radical, a C_3 - C_{10} cycloalkyl radical, a C_7 - C_{10} bicycloalkyl radical, optionally substituted naphthyl or phenyl; and

X' is a C_2 - C_{20} polyol residue comprising from 2 to 6 hydroxyl groups.

19. The water-in-oil emulsion as defined by Claim 18, wherein said compound of formula (II), X' is an ethanol or pentaerythritol residue.

20. The water-in-oil emulsion as defined by Claim 19, said compound of formula (II) being selected from among the following compounds:



21. The water-in-oil emulsion as defined by Claim 1, said at least one 4,4-diarylbutadiene compound constituting from 0.1% to 20% by weight relative to the total weight of the emulsion.

22. The water-in-oil emulsion as defined by Claim 1, further comprising at least one additional organic or inorganic sunscreens agent active in the UV-A and/or UV-B regions, water-soluble, fat-soluble or insoluble in the usual cosmetic solvents.

23. The water-in-oil emulsion as defined by Claim 22, comprising at least one additional organic screening agent selected from among anthranilates; cinnamic derivatives; dibenzoylmethane derivatives; salicylic derivatives, camphor derivatives; triazine derivatives; benzophenone derivatives; β,β' -diphenyl acrylate derivatives; benzotriazole derivatives; benzalmalonate derivatives; benzimidazole derivatives; imidazolines; bis-benzoazolyl derivatives; p-aminobenzoic acid (PABA) derivatives; methylenebis(hydroxyphenylbenzotriazole) derivatives; benzoxazole derivatives; screening polymers and screening silicones; dimers derived from α -alkylstyrene and mixtures thereof.

24. The water-in-oil emulsion as defined by Claim 23, said at least one additional organic screening agent being selected from among:

Ethylhexyl Salicylate,

Ethylhexyl Methoxycinnamate,

Octocrylene,

Butyl Methoxydibenzoylmethane,

Phenylbenzimidazole Sulfonic Acid,

Benzophenone-3,

Benzophenone-4,

Benzophenone-5,

n-Hexyl 2-(4-diethylamino-2-hydroxybenzoyl)benzoate,

4-Methylbenzylidene camphor,

Terephthalylidene Dicamphor Sulfonic acid,

Disodium Phenyl Dibenzimidazole Tetra-sulfonate,

2,4,6-Tris(4'-diisobutyl aminobenzalmalonate)-s-triazine

Anisotriazine,

Ethylhexyl triazone,

Diethylhexyl Butamido Triazone,
Methylene bis-Benzotriazolyl Tetramethylbutylphenol,
Drometrizole Trisiloxane,
Polysilicone 15,
2,4-Bis-[5-1-(dimethylpropyl)benzoxazol-2-yl-(4-phenyl)imino]-6-(2-ethylhexyl)imino-1,3,5-triazine,
mixtures thereof.

25. The water-in-oil emulsion as defined by Claim 22, comprising at least one additional inorganic screening agent selected from among metal oxide pigments or nanopigments, whether coated or uncoated.

26. The water-in-oil emulsion as defined by Claim 25, said at least one additional inorganic screening agent comprising nanopigments of titanium oxide, amorphous or crystallized, in rutile and/or anatase form, iron oxide, zinc oxide, zirconium oxide or cerium oxide.

27. The water-in-oil emulsion as defined by Claim 1, further comprising at least one agent for artificial bronzing and/or tanning of the skin.

28. The water-in-oil emulsion as defined by Claim 1, further comprising at least one cosmetic adjuvant selected from among organic solvents, ionic or nonionic thickeners, demulcents, humectants, opacifying agents, stabilizers, emollients, silicones, insect repellents, perfumes, preservatives, surfactants, fillers, active agents, pigments, polymers, propellants, alkalinizing or acidifying agents or any other ingredient commonly employed in the cosmetic and/or dermatological field.

29. A method for the photoprotection of the skin, lips and/or hair against the damaging effects of UV-radiation, comprising topically applying thereon, a thus effective amount of a stable UV-photoprotective water-in-oil emulsion containing at least one polymeric surfactant comprising at least one polar part and at least one polyolefinic apolar part, and also containing at least one organic 4,4-diarylbutadiene UV-A-screening agent.